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**METHOD AND DEVICE FOR ESTABLISHING A CONNECTION BETWEEN A
FIRST AND A SECOND SUBSCRIBER IN A TELECOMMUNICATIONS
NETWORK**

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CLAIM FOR PRIORITY

This application claims the benefit of priority to European
Application No. EP 020 05 509.1, filed on March 11, 2002,
the contents of which are hereby incorporated by reference
10 in its entirety.

TECHNICAL FIELD OF THE INVENTION

The invention relates to a method for establishing a
connection between a first and a second subscriber of a
15 telecommunications network and to a device for executing
the method.

BACKGROUND OF THE INVENTION

Daily life, not only in business but also in the private
20 sphere, is governed more and more as regards the communica-
tion media by the transfer of electronic documents. Typical
examples are e-mails which can contain practically any type
of attached document, as well as the process of uploading
and downloading of files familiar from the Internet. This
25 involves the transfer of text documents, images, music,
videos, programs and such like. The vast amount of conceiv-
able possibilities makes it impossible even to give an
approximate list here. The list given above can thus not be
taken as a restriction. The general term „object“ is thus
30 used in this document in place of more precise specifica-
tions.

The central problem with this type of data traffic is to create a simple option for contacting the author of an object or for getting into contact with a person capable of providing information relating to this object. For this purpose contact addresses are included in the object, something that can be done directly with text documents for example, as part of the transferred text. As well as purely textual information automated contact options are also created however.

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A device is known from JP(A) 11017734, "Electronic mail device", dated 22.1.1999 which allows a telephone connection to be established automatically between the recipient and the sender of an e-mail. To this end said device includes means for receiving the telephone number of the sender and a control which sets up the telephone connection.

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A further example are what are known as links, with the aid of which an interested party can automatically be directed on an Internet page to a contact. The automatic creation of an e-mail also represents this type of option. Also known is the setting up of a voice connection with the aid of special links which point to a private branch exchange or to a function which controls the exchange.

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An example of such a method is disclosed in US-A-5838682, "Method and apparatus for establishing communications with a remote node on a switched network based on hypertext dialing information received from a packet network", dated 17.11.1998. This specifies an Internet access system which automatically sets up a connection to a contact via a

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circuit-switched telecommunications network on request,
while the connection to the Internet is in place via a
packet-switched network. To this end links are inserted
into an HTML file which, when activated, establish a
5 preprogrammed telephone connection.

A further example is WO-A-0186897, "System for enabling
one-click telephone connections", dated 15.11.2001 from
which it is known that an e-mail recipient can automati-
10 cally establish a voice connection with the sender of this
e-mail. To this end the telephone number of the sender is
stored in a database, a corresponding link inserted into
the e-mail and, on activation of this link, a voice connec-
tion between these parties is established with the aid of
15 the recipient's telephone number.

Finally, US-A-5991394, "Method and system for establishing
voice communications using a computer network", dated
23.1.1999 discloses a system which gives the user the
20 opportunity to request a call back on an Internet page from
a contact associated with this page. This involves specify-
ing the telephone number of the user via a second page and
subsequently establishing a voice connection.

25 A further form of specifying a contact option is to use
attributes which are appended to the object. These are not
contained in the object in the true sense but are rather
appended to it, even if the object as a rule can only be
transferred as a whole, that is with attributes. For the
30 requirements of the present invention an object thus at
least consists of actual content and of a number of attrib-
utes. Attributes which can be provided for example are the

name of a contact, their physical address or e-mail address as well as further information such as date of storage, file size or similar. Attributes are stored in such cases in a „Header area“ of an object for example.

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In accordance with the prior art there is no option of establishing an automated connection to a contact without changing the content of the object. As a rule therefore an address of a subscriber transferred in a telecommunications network must be entered manually.

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SUMMARY OF THE INVENTION

The invention discloses a method which makes it possible to establish a connection in a simple manner between a first and a second subscriber in a telecommunications network.

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In the invention, the address assigned to the second subscriber in the telecommunications network is added as an attribute to the content of the object and is read out from there.

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In one embodiment of the invention, there is a method for establishing a connection between a first and a second subscriber of a telecommunications network,

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- where an object intended for use on a computer is created,
- where an address assigned to the second subscriber in the telecommunications network is inserted into this object,
- where this object is transferred to the first subscriber and stored there on a computer,
- where, with the aid of a function which is activated by the first subscriber, the address assigned to the second

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subscriber in the telecommunications network is read out from the object and

- where the connection between first and second subscriber is established with the aid of this address.

5 The invention further relates to a device for executing the method.

One advantage of this is the automated setup of a connection between a first and a second subscriber of a telecommunications network, where the second subscriber is generally the author of an object a person capable of providing information relating to this object. In this case, the address assigned to the second subscriber in the telecommunications network is inserted as an attribute in an object, by the author himself for example. This object is then transferred to the first subscriber, for example by e-mail, via data media or also by means of a download from an Internet page and is stored transiently or permanently there. For the purposes of establishing contact with the second subscriber, the first subscriber then activates a function which reads out the address assigned to the second subscriber from the attribute and establishes the desired connection. As a rule this will be a real time communications connection, such as a voice connection or a multimedia connection, but it is also of course conceivable to send text messages, for example with the aid of the Short Message Service, SMS. Real time communication in this case is not just restricted to circuit switched telecommunications networks, but naturally also extends to packet-switched telecommunications networks.

It is pointed out in this connection that in this context laptops, palmtops and similar devices with which objects can be processed, can also be regarded as computers.

- 5 In another embodiment of the invention, there is a method
- where an object is created for use on a computer,
 - where an identification assigned to the second subscriber is inserted into this object,
 - where this object is transferred to the first subscriber

10 and stored there on a computer,

 - where, with the aid of a function which is activated by the first subscriber, the address assigned to the second subscriber in the telecommunications network is determined using the identification contained in the object

15 - where the connection between first and second subscriber is established with the aid of this address and

 - where the identification assigned to the second subscriber is used as an attribute at a content of the object and is read out from there.

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The major difference between this solution and the one already described is the insertion here of the identification of the second subscriber into the attribute of the object, for example their name, if necessary including

25 further information such as their address. With the aid of this identification a function is used to determine the actual address of the second subscriber in the telecommunications network. A device for assigning address to identification is a table which is accessed by the function. In

30 the simplest case the table comprises two columns, one for of the name of the subscriber for example and one for the address assigned to this subscriber in the telecommunica-

tions network. As a storage location for this table it is conceivable on the one hand to use any computer on which the function to establish the connection is also activated, but on the other hand to also use any other storage location to which this computer has access, such as in a telephone directory administered centrally in a computer network or a data medium. If the identification is structured in the appropriate way it is also conceivable to determine an address by means of an algorithm. For example, a first part of the address can be determined with the aid of the first attribute, a second part of the address with a second attribute.

It is also advantageous

- if the identification included in the attribute of the object can be transferred in the telecommunications network using the function activated by the first subscriber,
- if the address of the second subscriber is determined there on the basis of this identification and
- if the connection is established to the second subscriber.

With this embodiment of the invention, the address/identification of the second subscriber is assigned in the telecommunications network itself. In this case, the identification is transferred into the telecommunications network with the aid of the function activated by the first subscriber and is evaluated there, or subsequently the connection is also established. This is especially advantageous when the required data and is provided centrally by a

telecommunications network operator or if a private branch exchange within a company is involved.

In another embodiment of the invention

- 5 - an e-mail is provided as the object,
- an e-mail address of the second subscriber is included as the identification, and
- the address of the second subscriber in the telecommunications network is determined on the basis of this e-mail
10 address.

In this case, an identification of the second subscriber which is present in any event is advantageously included to determine their address in the telecommunications
15 network. Thus not only can contact be established with the sender of a message by answering this message but also the method in accordance with invention is applied. The same method of transfer used to receive the message is thus not included for answering but another method, namely the
20 method in accordance with invention. This is especially advantageous if it seems to make less sense to answer an e-mail than to make a telephone call to the sender.

In still another embodiment of the invention, there is a
25 computer which is provided for executing the method in accordance with invention,

- where this includes a device for establishing a connection between a first and a second subscriber on the basis of an address assigned to the second subscriber,
- 30 - where this includes a function for reading out the address assigned to the second subscriber from an object of this computer, and

- where the address assigned to the second subscriber is inserted as an attribute to a content of the object.

A device is specified with which the automated setup of a
5 connection between a first and a second subscriber of a telecommunications network becomes possible, where the second subscriber is generally the author of an object or a person capable of providing information relating to this object. In this case, the attribute of an object includes
10 the address assigned to the second subscriber in the telecommunications network. This serves for example as an entry parameter of a modem integrated into the computer.

It is pointed out that the advantages specified for the
15 method also apply in equal measure to the device as well as to devices used in the same way as a computer such as laptops, palmtops and such like, as well as mobile telephones where these are suitable for administering objects.

20 In yet another embodiment of the invention, there is a computer which is provided for executing the method in accordance with invention.

- where this includes a device for establishing a connection between a first and a second subscriber on the basis
25 of an address assigned to the second subscriber,
- where this includes a function for reading out an identification assigned to the second subscriber from an object of this computer
- where this includes a function for transferring the
30 address assigned to the second subscriber on the basis of this identification, and

- where the address assigned to the second subscriber is inserted as an attribute to a content of the object.

The difference from the solution already explained is that
5 here it is not the address of the second subscriber themselves which is included in the attribute of the object but an identification assigned to it. In this case, the computer also includes a function for reading out the identification from the attribute as well as a further function
10 for assigning an address of the second subscriber in the telecommunications network to this identification. The splitting of the two separate functions is not a mandatory requirement here. Instead the two tasks can also be performed by one and the same function.

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The invention is explained in more detail on the basis of exemplary embodiments shown in the Figures which relate to the establishment of a connection between a first and its
20 second subscriber in a telecommunications network in accordance with the invention.

The Figures show:

Figure 1 shows a computer in which various objects in accordance with invention and functions are administered.

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Figure 2 shows a flowchart of a typical function in accordance with the invention for setting up a connection

DETAILED DESCRIPTION OF THE INVENTION

30 Figure 1 shows a computer PC, in which various objects in accordance with the invention OBJ and functions F are administered. These are a first object of type x OBJ1x, a

second object of type y OBJ2y, a third object of type x
OBJ3x, a fourth object of type y OBJ4y and a fifth object
of type z OBJ5z. In addition a first function Fx, a second
function Fy and a third function F, as well as a switching
5 service VD are administered in the computer PC.

The arrangement shown in Figure 1 functions as follows:

Objects of type x, in this specific case the first object
10 OBJ1x and the third object OBJ3x, can be processed with the
aid of the first function Fx, but objects of other types
cannot. This state is indicated by arrows drawn with solid
lines. For example, the first function Fx can be available
within a Word processing program. The content of the object
15 of type x includes texts in this case. In addition the
objects include attributes suitable for setting up a
connection.

Objects of type y, in this specific case the second object
20 OBJ2y and the fourth object OBJ4y, can be processed with
the aid of the second function Fy, but the other types
cannot. This state is indicated by arrows drawn with solid
lines. For example, graphical data formats can be provided
for objects of type y.

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Finally, a third function F is administered in the computer
PC which is suitable for processing all three types avail-
able. As a rule processing will be restricted in this case
to those procedural steps required to set up a connection
30 in a telecommunications network. The objects OBJ which are
suitable as input for the third function F are indicated by
arrows drawn with dashed lines in the Figure. In this case,

the method in accordance with the invention can be applied to the fifth object OBJ5z with the aid of the third function F. This is the case, for example, if a program provided for processing objects of type z does not include the
5 function in accordance with the invention. In order to make the method in accordance with the invention available to the computer PC user despite this, a separate program created for this purpose can be provided.

10 Three functions F forward the request to establish a connection to the switching service VD which handles central tasks independent of the different types. This can include the control of a modem, for example.

15 Figure 2 shows a flowchart of a typical function F in accordance with the invention for setting up a connection.

The flowchart shown in Figure 2 functions as follows:

20 The execution sequence of the function F initiated by the first subscriber starts with the Start state. To start with the attributes included in the object are read out. Then a check is made as to whether they contain a directory number for a subscriber of a telecommunications network. If they
25 do, the number is displayed to the first subscriber and subsequently the connection to the second subscriber is set up. The function then changes to the End state.

If no directory number can be read out, a check is made as
30 to whether an identification assigned to the second subscriber is included as an attribute. If it is, then the directory number assigned to the second subscriber is

determined on the basis of this identification. Subsequently, the directory number is again displayed, the connection to the second subscriber established and a change made to the End state.

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If, however, a directory number is not included as an attribute nor is there an identification with which the directory number of the second subscriber can be determined, the execution sequence of the function branches

10 directly to the End state.